



**FULFILLING THE
PROMISE OF MIDI!**



Dr. T's MUSIC SOFTWARE

DX PATCH LIBRARIAN

USER'S GUIDE

**FOR USE WITH
APPLE IIe or II+
COMPUTERS**



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DR.T'S MUSIC SOFTWARE

DX PATCH LIBRARIAN USERS MANUAL

PREFACE

I would like to thank you purchasing the DX7 Patch Librarian. I hope that you will find it a convenient tool for editing, printing and storage of DX7 and TX7 patches. I am also offering a DX7 patch library service, described at the end of the manual.

If you have any questions about the operation of the software that you cannot resolve from reading the manual, please feel free to call us at 617-244-6954, between 9AM and 7PM EST Monday-Friday. We CANNOT provide technical assistance to calls made on our personal phones at any time! We are no longer able to return calls for technical assistance.

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I. OVERVIEW

The DX Patch Librarian allows you to transfer patch data between your instrument (DX7, DX9, TX7 or TF1) and the Apple IIe or II+ computer. Patches in the computer can be edited, with the edited patch sent back to the instrument's sound buffer whenever a change is made. The computer memory can hold 64 patches at once. Patches can be sent back and forth between the computer and the instrument. Patches can also be printed out and named, and the names of patches currently in the computer can be printed out or listed.

USING THE COMPUTER - MENUS, PROMPTS AND THE COMMAND LINE

Much of the communication between the program and the user (YOU!) is done using prompts and menus. A prompt is a request for specific instructions or actions. It is issued by the computer when it requires some specific information to direct its next action. An example of a prompt is the request ENTER PATCH NUMBER: made by the computer when the edit patch option is selected. A menu is a list of choices from which you are to make a selection. It is somewhat similar to a restaurant menu, except that you can only make one selection at a time and sometimes that selection causes the program to display another menu. (Imagine a restaurant menu from which you could make the selection DESSERTS, with a list of desserts presented after the selection of the desserts option is made.) Pressing (RETURN) at any menu (other than the MAIN MENU), causes the program to return to the previous menu.

The program also makes use of a feature called a command line. When you are in Edit mode, you have a large selection of choices that can be made. As you will need the patch information on the screen in order to make an intelligent choice, the possible choices are not listed on the screen. You will have to refer to your manual, or to the Command Line Reference List in the back.

In some situations the program can obtain the information it requires from a single keypress. In these situations you will not have to follow your entry with the RETURN key. All of the menus allow you make your selection with a single keypress.

HARDWARE REQUIREMENTS

The program requires an Apple IIe computer, or an Apple II+ with 64K. The MIDI interface card must be a Passport, Syntech or compatible card, and must be in slot 2. The printer, if any, must be in slot 1. The 80 column card is not supported.

ERRORS

You may encounter an error in the execution of your program. There are two likely causes of errors. You might encounter a bug in the program (Impossible!, I would like to say, but I know better), or you may encounter an I/O error attempting to use a disk or printer. The most likely DOS errors, (IO error, disk full, file not found), are printed out if they occur. Other errors, including BASIC errors, result

In the message ERROR NUMBER nn IN LINE nn. If a BASIC error occurs, please notify us.

In any case, the program will return to the main menu as soon as you press a key.

PATCH BANKS

The program is capable of storing 64 patches at one time. These patches are numbered 1 through 64. They are also divided into two patch banks. Bank 1 consists of patches 1-32 and bank 2 consists of patches 33-64. If you select an option that involve a whole set of patches (e.g. bulk sends or disk saves), the program will ask you to select bank 1 or bank 2 for the operation.

The Sequencer interface shares memory with the second patch bank. When you enter Sequencer Mode, the patches in the second bank are lost. Until you cancel sequencer mode, only bank 1 will be available. When you cancel sequencer mode, the patches in bank 1 will be copied into bank 2.

INSTRUMENTS SUPPORTED

I have tested this software thoroughly with a DX7 (with a 1984 ROM program), and a TX7. I have been told that the program functions with a DX9 in the same way as it does with a DX7. I am less familiar with the TFI modules found in the TX2-16 and TX8-16 units. If there are any inaccuracies in my description of the program's function with these modules, please let us know.

I am not familiar with the various DX7 ROM updates (Yamaha and E!), and the other DX synths (DX1, DX5, DX21 etc.) The program will function with any DX7-like instrument, but there may be some fine points not covered in this manual. One of our customers reports that the program functions with a DX21 synth, although a reading of the Yamaha documentation makes this seem impossible. If you try the program with a DX21-like instrument, please let us know the results.

INSTRUMENT SETUP

DX7's and DX9's cannot send or receive patch data unless they have been palced in SYSTEM EXCLUSIVE INFORMATION AVAILABLE mode. They can not receive patch data unless they are receiving on MIDI channel 1 and have MEMORY PROTECT INTERNAL OFF. Other instruments must be on channel 1 to receive data, and cannot store data or receive bulk dumps unless they have MEMORY PROTECT OFF.

II. DESCRIPTION OF MAIN MENU OPTIONS

Once program loading has completed, a menu of 9 items will appear on the screen. This section of the manual contains a detailed description of items 1 through 8 on this menu. The next section of the manual contains a description of item 9, EDIT PATCH.

I. DISK FUNCTIONS

Selection of this option brings up a menu with five items on it.

1. CATALOG

Selection of this option causes the program to display the catalog of the disk currently in the disk drive. Files created with this program will have the prefix PATCH. before the name under which they were saved.

2. LOAD DISK FILE

This option allows you to read into the computer a disk file containing 32 patches that has previously been stored on disk. The program will ask you to specify the patch bank that you wish to load into and the name that you used in storing the file. The program will read the disk file into the computer memory. It will issue a message if the file specified is not on the disk, or if an I/O error occurs.

3. SAVE DISK FILE

This option will store one bank of patches currently in the computer memory on disk. The program will ask you to specify the patch bank that you wish to save, and the name that you wish to give to the disk file. You will need to use this name to read the data from the diskette using option 1. In both this option and the previous option, the program will ask if you wish to use the last file used in this bank, before requesting a new file name. CAUTION, the program will not give you any further warning before saving over an existing file.

Disks can be damaged, and data files are sometimes inadvertently erased by users. (I know this from sad personal experience.) I strongly recommend that you make at least two copies of important sets of patch files.

4. CHANGE DRIVE

This option allows you to change the drive number used for disk IO. The catalog of the disk in the new drive will be displayed.

5. CHANGE SLOT AND VOLUME

This option allows you to specify a slot and volume number. It is mainly intended for users of hard disks. I do not guarantee that the proprietary DOS supplied with the program will work on any

particular hard disk.

2. SEQUENCER MODE

This option provides you with a play only version of Dr. T's Keyboard Controlled Sequencer. Up to 1755 notes of sequences created with the KCS can be loaded and played. Sequences can be played using the play screen of the sequencer itself, or from the operator page of the EDIT PATCH option.

CAUTION: Entering Sequencer Mode causes all patches in bank two to be erased, as this data area is used for sequence storage. ALSO, attempting to load more than 1755 notes, from either an individual or a combined sequence file, will cause the program to CRASH! If you are at all unsure about the size of your load, SAVE your patch data!

A file of sequences in a variety of styles and tempos is provided for use with the program. This file is loaded using the name TEST.

Selection of this option causes the following menu to be displayed:

1. LOAD SEQUENCES

This option functions identically to the LOAD function in the KCS program. If you want to use the sequences provided with the program, answer the question LOAD ALL SEQUENCES? with a Y, and specify the file name TEST.

2. PLAY

This functions in the same manner as the play screen in the Keyboard Controlled Sequencer. If you are using the TEST sequences, you can start any sequence by pressing its SEQUENCE KEY, the number or letter under the S column. The sequence will continue to loop until you press the sequence key again, at which point it will complete its last cycle and stop. You can increase or decrease the tempo of any sequence by pressing the .> and ,< keys.

Press the cursor left key to return to the SEQUENCE MODE menu.

- 3. CHANGE STEPS/MEASURE
- 4. CHANGE CLOCK

These function in the same way as in the KCS program, except that MIDI clock in is not available. Changing clock will have no effect on the TEST sequences, as each of these sets its own tempo.

5. CANCEL SEQUENCER MODE

Selection of this option cancels sequencer mode, and allows you to use the second bank for patch storage. Patches from the first bank are copied into the second when sequencer mode is canceled.

3. FUNCTION OPTIONS

When the program boots up, the EDIT PATCH option will not send

function data unless a value on the function page is changed. This option allows you to tell the program to send function data whenever a new patch is edited. It also allows you to copy function data from any single patch to all patches in either of the PATCH BANKS.

Selection of this option displays the menu that follows this paragraph. Below the menu, either SENDING FUNCTION DATA or NOT SENDING FUNCTION DATA is displayed.

1. CHANGE FUNCTION STATUS

This option allows you to switch between sending and not sending function data. The function status only affects data sent when a patch is called up for edit. If a function parameter is edited, the new function data for the patch is always sent.

2. FUNCTION COPY

This option allows you to copy function data from any individual patch to all of the patches in a bank. The program will ask you to enter a patch number (1-64) and a bank (1 or 2).

4. GET ONE PATCH FROM DX/TX

This option allows you to send a single patch from your instrument to the program. The procedure depends on the instrument used. If you are using a DX7 or DX9, you must set your instrument to SYSTEM EXCLUSIVE AVAILABLE before sending any patches. It is also a good idea to set MEMORY PROTECT INTERNAL OFF, as if you send a patch to a DX with memory protect on, it will not only not accept the patch, but also not send any more patches. Selection of any patch on a DX7, or any patch other than the current patch on a DX9, will cause the patch data to be sent over MIDI.

On a TX7 or TF1, it is necessary to use the EDIT VOICE OUT function to send a single patch. On a TX7 EDIT VOICE OUT is reached by pressing the MODE switch to get to SHIFT MODE and then pressing the DUMP/INIT switch until EDIT VOICE OUT? appears in the window. Pressing Y at this point sends the patch over MIDI. On a TF1, when edit voice out is selected the window will read EDIT WHAT? Press the +1 or -1 keys to send the patch one greater than or one less than the current patch.

When a patch is received the program will issue the prompt ENTER PATCH NUMBER FOR COMPUTER STORAGE: . Enter a number between 1 and 64. The program will ask if its OK to store the patch, and ask you to enter a description if desired. The description can be up to 26 characters long. You can bypass the OK and description steps by following the patch number with an N.

If you do not receive the ENTER PATCH NUMBER prompt, you have made an error in setting up your equipment. You can return to the main menu of the program by pressing any key on the keyboard. If you are using a DX7 or DX9, function data will not be sent, and the program will keep the function data previously in the patch.

5. BULK SEND AND RECEIVE

This option allows you to send sets of 32 patches between the computer and the instrument. Patch data and performance function data are sent in independent operations. THE INSTRUMENT MUST BE RECEIVING ON MIDI CHANNEL 1 or it will not accept bulk data. Selection of this option displays the following menu:

1. SEND PATCH DATA TO DX/TX

This option allows you to send all 32 patches from either bank 1 or bank 2 to a DX or TX. The instrument must be receiving on MIDI channel 1, and have MEMORY PROTECT off. A DX7 or DX9 must also be set to SYSTEM EXCLUSIVE INFORMATION AVAILABLE. The program asks you to select a bank, and sends the data. Note that if the data for a patch has been somehow scrambled, higher number patches may not be received by the instrument.

2. GET PATCH DATA FROM DX

The program will ask you to select a patch bank and then wait for a set of 32 patches to be sent by a DX. To send the patches, press the function switch press the 8 button until MIDI TRANSMIT? appears in the window, and then press Y. This option can also be used with a TX7 or TPI module.

3. GET PATCH DATA FROM TX

This is identical to the previous option, except that the program sends a bulk data request to the instrument after you have selected the patch bank. The DX7 and DX9 do not respond to bulk data requests.

4. SEND FUNCTION DATA TO TX

The program asks you to select a patch bank, and sends the function data for all 32 patches in the patch bank to a TX module. Note that the DX7 cannot receive function data. Also note that keysplit data are not received in this mode. Keysplit data can only be sent by editing the patches individually.

5. GET FUNCTION DATA FROM TX

This is identical to option 3, except that the TX sends function data instead of patch data. IMPORTANT NOTE: A TX7 stores 2 sets of function data at once, TX PERF, which affects the sounds made by a TX module, and DX FUNC, which is intended for sending to DX7's which have had a ROM update that allows them to receive it. When a TX sends bulk function data, it always sends the DX FUNC data. TX PERF data can only be sent one patch at a time.

6. LIST PATCHES

The program asks you to select a patch bank and displays the patch names and descriptions of the first 16 patches of the bank. At this point, you can select a patch to edit, or press return and see the other 16. If you do not select a patch to edit, the program returns to the main menu.

7. ECHO MIDI INPUT

Selection of this option places the program in echo mode. This causes the program to act as a MIDI through box. You can now play your master keyboard and hear the resulting sounds on your TX module. Press any key on the computer keyboard to return to the main menu. Be sure that you are not holding down a note on your synth when you exit from echo mode. This option is available from most places on the edit screens.

8. PRINT PATCHES

This option allows you to print all of the parameters that make up a single patch. It also allows you to print all of the patches in either bank, or to print the names and descriptions of all of the patches in a bank. Patches are printed two to a page, names and descriptions are printed three banks to a page.

9. EDIT PATCH

The program asks you to enter the number (1-64) of the patch (from computer memory) that you wish to edit. The EDIT PATCH option is described in detail in the next section of the manual.

10. HIDDEN FUNCTION

There is one 'hidden function' that is available from the main menu.

S. SLOW MIDI TRANSMISSION

Some DX's and TX's cannot receive patch data when sent at baud rate. The program sends patch data somewhat slower than the maximum rate allowed by MIDI. Pressing S at the main menu will slow down the transmission. Do not use this option unless your instrument has trouble receiving patch data when you don't use it.

III.

EDIT COMMANDS

The EDIT PATCH option allows you to display and edit any DX7 patch currently stored in the computer memory. Editing is performed on three screens. One screen contains all of the operator parameters, listed in six columns. A second screen contains all of the parameters that do not involve the individual operators, and a third contains the performance or function parameters. I will refer to these screens as the operator screen, the general screen, and the function screen.

After this option is selected, the program will issue the prompt ENTER PATCH NUMBER: . You should reply with the number of the patch (in the computer memory) that you wish to edit. After you reply, the selected patch will be sent to the edit buffer of your instrument, and the operator screen will appear. If you are using a DX keyboard, you can play the new patch. If you are using an expansion module, you can press E (RETURN), and place the program in echo mode. Press any key to return from echo mode to edit mode.

Note that the patch will not be received by a DX7 unless it has been set to SYSTEM INFORMATION AVAILABLE with MEMORY PROTECT INTERNAL OFF. If you have forgotten to make these settings on the DX7, you can make them at this time. As soon as you make any change to the patch being edited, the new patch will be sent to the DX7. Note also that the instrument must be receiving on MIDI channel 1, or patch data will not be received.

The operator screen appears as soon as a patch is selected for edit. It consists of six columns, one for each operator, and 19 lines, one for each of the parameters that are defined separately for each operator. The three parameters that determine the operator frequency are combined into a single line. There was not enough room on each line for the operator data, a reasonable description of the parameter, and a line number, so I do not show the line numbers on the screen. The line numbers are very significant in the edit process, so I am listing them below.

- | | | |
|-----|----------|---|
| 1. | RATE | 1 |
| 2. | LEVEL | 1 |
| 3. | RATE | 2 |
| 4. | LEVEL | 2 |
| 5. | RATE | 3 |
| 6. | LEVEL | 3 |
| 7. | RATE | 4 |
| 8. | LEVEL | 4 |
| 9. | OUTPUT | |
| 10. | FREQ | |
| 11. | DETUNE | |
| 12. | VEL SENS | |
| 13. | AM SENS | |
| 14. | RATE SCL | |
| 15. | BRK PNT | |
| 16. | LEFT DEP | |
| 17. | RGT DEP | |
| 18. | LEFT CUR | |
| 19. | RGT CUR | |

The values that appear should be self-explanatory if you have used the DX7's edit facility at all. A chart of the DX7's algorithms is listed in an appendix for users of the TX expansion modules. Note that the frequency listed will be followed by an H if it is a fixed frequency, and will not be followed by an H if it is a frequency ratio. Note also that the DX7 accepts ratios from .5 to .995 in increments of .005, even though its display will not show the third decimal place.

The algorithm number, computer patch number, patch name and patch description will also appear on the screen. The prompt ENTER OPTION: will appear on the line above the cursor, which will be at the beginning of a blank line. Note that all of the options described below refer to things that you can do when the cursor is on this line.

CHANGING A SINGLE PARAMETER

There are several ways in which you can change the data on the operator screen. If you wish to change a single parameter for a single operator, enter the line number of the parameter, a -, the operator number, another -, and the new value. If you are changing frequency, be sure to follow the frequency entered with an H if you want a fixed frequency operator. If you are changing break point, you must enter the break point exactly in the format in which it is displayed, i.e. C 4, to change the break-point to C above middle C, or A#2 to change it to A# below middle C. If you are changing the curve, you can use the abbreviations E and L for exponential and linear.

If you enter a valid change, the program will display the new value in the appropriate spot on the screen, and send the updated patch to the instrument's edit buffer. You can immediately hear the results of the change by playing the new patch on the keyboard of a DX, or by entering echo mode with a TX. If the change that you entered is not valid, because of improper format or specification of a value that is out of the range for the specified parameter, there will be no change in the screen display, and no patch data will be sent to the DX7.

The following examples should illustrate the format for changes in a single parameter value:

1-1-99 (RETURN) changes rate 1 for operator 1 to 99.
9-5-88 (RETURN) changes the output level for operator 5 to 88.
10-4-.6 (RETURN) changes the frequency of operator 4 to a ratio of .6.
10-4-100H (RETURN) changes operator 4 to a fixed frequency of 100 HZ.
10-4-.5H (RETURN) has no effect, because fixed frequencies of less than 1 HZ are not provided by the DX7.
11-2--1 (RETURN) changes the detune of operator 2 to -1.
15-1-C 4 (RETURN) changes the break point of operator 4 to C 4.
18-2+E (RETURN) changes the right curve of operator 1 to positive exponential.

Note that some of the patches provided by Yamaha contain some patch parameters set to values of 127. These values are equivalent to values of 99, but they cause the screen display to be incorrect. If you are editing one of these patches, you should edit the value of 127 to 99, save the patch (see below), and get back into it to continue editing.

CHANGING MULTIPLE PARAMETERS (FULL SCREEN EDIT)

If you wish make multiple changes to a patch, you can enter the line number of the parameter that you wish to start with, and RETURN. The program will place the cursor on the line that you have elected to change, and display the message START LINE WITH X TO EXIT. You can enter an X if you decide that you don't want to change the current line, or you can change any of the values on the screen and then hit RETURN. You must enter the changed values using the columns in which they are displayed. Note that you must hit return while the cursor is on any line that you have changed. You can, however, make changes anywhere on the screen, as long as you press return while the cursor is on the line changed. After you hit return, the program will rewrite the line that the cursor was last on, and send the updated patch to the instrument.

There are four characters that can be used to move the cursor rapidly around the screen. TAB or Control I will move the cursor one operator to the right. Apple IIe users can type these with a single keystroke, while II+ users will have to use shift or control. Backslash or % will move the cursor one operator to the left. (or @ will move the cursor up five lines, while | or \$ will move the cursor down five lines. Apple II+ users will have to use Control J and K instead of the cursor down and up keys.

If you want to enter a series of parameter values for a single operator, you can enter the first parameter number desired, a dash, and the operator number. The cursor will move to the operator and parameter selected, and the program will allow you to type a new value for this parameter. You must follow this value with RETURN. The program will then send the updated patch to the instrument and move the cursor down one line. You can exit from this mode by typing X (RETURN).

For example, you can enter all of envelope parameters for operator 2 by typing 1-2 (RETURN). The program will place the cursor on line 1 (RATE 1) under operator 2, and accept input for each parameter of operator 2, in order.

FAST EDIT MODE

A new mode for editing patch data has been added to Version 2 of this program. I call this mode FAST EDIT MODE, and find that it is usually the most convenient method for making multiple changes to a patch.

To enter fast edit mode from the operator screen, type the parameter number that you wish to edit, a -, the operator number that you wish to edit, and an *, =, or E. Type a * or = if you are using a DX keyboard, or an E if you are using an expansion module. The E will leave you in echo mode for the duration of your FAST EDIT session.

For example, type 9-2* to FAST EDIT the output of operator 2, or 9-2E to fast edit the same output while keeping the program in echo mode. As soon as you enter FAST EDIT, the message FAST EDIT, and the parameter and operator numbers, will appear on the line beneath the ENTER OPTION prompt.

Once you are in fast edit mode, you can use the letters Z, X, C and V to increase or decrease the value being edited. Z increases the value by 8, X increases it by 1, C decreases it by 1 and V decreases it by 8. If a change would cause a parameter to be given a value outside its range, the parameter will be given its greatest or least possible value.

If you are FAST EDITing the frequency values, the Z, X, C, and V keys will affect the FINE frequency in the internal memory of the instrument. B will increase the coarse frequency by 1, while N will decrease it by 1. You can also set the value of a parameter in FAST EDIT mode by typing two digits. The program will set the internal representation of the parameter (often the same as the value displayed), to the two digit number entered. Be sure the first digit is a 0 if you want to set a parameter being FAST EDITed to a single digit number.

As soon as you make a change in FAST EDIT mode, the program will update the screen and send the new patch to the instrument. If you entered FAST EDIT with an E, you can echo your master keyboard on your instrument after any change. You can also enter echo mode by pressing E at any point in fast edit.

You can use the cursor keys and Control J and K to change the parameter that you are working on in FAST EDIT mode. For example, press cursor right to increase the operator number being FAST EDITed by 1. The message indicating which parameter is being FAST EDITED will be updated as soon as you choose a new parameter.

You exit from FAST EDIT mode by pressing RETURN. I find FAST EDIT to be the most convenient way to make multiple changes to a patch.

OTHER OPERATOR PAGE OPTIONS

You can compare your edited patch with the original patch by typing C (RETURN). The original patch will be displayed AND sent to the instrument for comparison. Type CE (RETURN) to compare with the original patch and go into echo mode at the same time. Use this option with TX expansion modules. Type C followed by a patch number, or CE, followed by a patch number, to compare the current patch with any patch in the computer memory. This feature is useful when trying to find an unused slot for patch storage. Press any key to exit from comparison mode.

You can play any sequence that has been loaded into the program (from SEQUENCER MODE) by typing * followed by the sequence key of the sequence and return. The edit screen will not be disturbed, but the sequence will play for the programmed number of times. All Sequencer play screen features are available. If you do not own the KCS and are using the TEST sequences supplied, note that looping can be stopped by pressing the key of the sequence and that any other sequence can be started by pressing its key. Use Cursor left to exit from Sequence play, just as you do when in SEQUENCER MODE.

You can exchange all of the patch parameters by typing E followed

by the two operators, with the operators separated by a -. for example, type E1-2 to exchange all parameters for operators 1 and 2. The screen will be rewritten to reflect the change, and the updated patch will be sent to the DX7. This exchange procedure is particularly useful when you have decided to change algorithm, and you want to keep a stack of operators in the same relative positions. For example, if you are changing from algorithm 28 to algorithm 29, you can enter E1-3 and then E2-4 to move the 1-2 stack from algorithm 28 into the 3-4 stack in 29.

You can also change the algorithm directly from the operator screen, by typing A followed by the new algorithm number and return. You can change the patch name or description, by typing N or D, a -, and the new name or description desired.

You can save the edited patch in computer memory by typing S followed by the patch number that you wish to assign the new patch in computer memory. Note that this will not save the patch on the instrument. A single patch can only be saved on the instrument by using the instrument's patch save facility. Note also that patches stored within the computer will be erased on power down. They must be saved to disk to be kept permanently. It is advisable to save your data every 15 or 20 minutes to avoid serious data loss.

You can edit a new patch in computer memory by typing P followed by the patch number that you wish to edit. The new patch will appear on the screen and be sent to the DX7. Any unsaved changes to previous data will be lost.

You can exit from patch edit by typing X (RETURN). The edited patch will be lost if you have not saved it. You can switch to the general screen by typing G (RETURN) or to the function screen by typing F (RETURN).

GENERAL AND FUNCTION SCREENS

The general and function screens are identical except for the data displayed. The program will list each of the parameters for the screen selected with a number, the parameter name, and the value. The program will then issue the prompt ENTER LINE-VALUE FOR CHANGE: . You can now change any parameter that appears on the screen.

You can change any of the values displayed by entering the line number, a -, the new value, and RETURN. The following abbreviations are used for entering the LFO wave. T or TR for triangle, SD for sawtooth down, SU for sawtooth up, SI for sine and SQ for square. For example, enter 1-3 (RETURN) on the general screen to change to algorithm 3, 3-SQ (RETURN) to change the LFO wave to square, etc. Note that the transpose must be entered in the same format as the break-points, i.e. enter 19-C 2 (RETURN) to transpose middle C to C 2. Note also that setting operator key sync off (10-OFF) will reduce the glitch that occurs when a new patch is selected while notes from the old patch are still playing.

A patch description will be displayed on line 21 of the general screen. This description is a 26 character description of the patch that can be displayed, printed, and stored on disk. It cannot be sent to the instrument. It can allow you, for example, to keep track of

different versions of the same sound.

The E, S, P, and exit options can be used on the general and function screens in the same way that they are used on the operator screen. FAST EDIT mode can be entered by typing the parameter number followed by a * or an E and then (RETURN). FAST EDIT works on these screens just as it does on the main screen. The cursor up and down keys can be used to change the parameter being FAST EDITED. A II+ user can use the left cursor key to move up, and the right to move down.

Note that all patch changes must be made from the computer screen in order to be entered into the current edit patch of the computer. Changes made on the instrument will not be sent to the computer as they are made. In most cases it is so much easier to make changes on the computer that you probably won't want to use the DX7 very often. If you want to adjust a parameter using the slider on the DX7, be sure to enter the adjusted value on the computer.

IDIOSYNCRASIES OF FUNCTION EDITING

The editing of function data (performance parameters) on the TX7 and TFI instruments has some peculiarities which are somewhat confusing and less than optimal. A keyboard range can be defined for each patch, and the instrument will respond only to notes within that range. The keyboard range can only be sent one patch at a time, however. Sending bulk function data does not change the keyboard ranges stored in the instrument.

The overall volume level of a patch can be changed by setting what Yamaha calls the attenuation and I call the volume. Unfortunately, when function data is sent for a patch, the volume level sent does not affect the volume produced by the instrument unless the patch is actually stored on the instrument. Needless to say, this makes balancing the volumes of a set of patches much more difficult than it ought to be.

DEMO PATCHES AND PATCH LIBRARY SERVICE

I have provided four sets of 32 patches with the patch librarian. These patches are in files DEMO1, DEMO2, DEMO3, and DEMO4. DEMO1 and DEMO2 contain some of my own patches, and include some fairly unusual sounds. DEMO3 and DEMO4 contain more straight-ahead patches. Most of the patches in DEMO1 and DEMO2 contain some amplitude modulation, and are intended for use with EG bias on the foot-pedal and/or on after-touch.

For those who would like more sounds, DX Patches Volume 1 is now available from DR. T's for \$50.00. This volume contains 64 more of my sounds, and sets of 32 sounds from seven different programmers. There is some chance that we will publish another volume, and I invite all users of the DX7 Patch Librarian to contribute one or more sets of 32 patches to the patch library. Each contributor will receive any volume which includes his patches free, and a 2 percent commission on gross sales of volumes containing his patches.

COMMAND LINE REFERENCE LISTS

OPERATOR SCREEN

In both command line references lists, l represents a line number, o an operator number, v a value, p a patch number, and xxx text. Other symbols are typed as they appear on this list. Command line entries must be followed by (RETURN).

- Change one value: Type l-o-v to set the value of the parameter on line l for operator o to the value v. Example: 9-3-88 sets the output level for operator 3 to 88.
- Full screen edit: Type l to enter full screen edit mode starting on line l. From this mode you can move the cursor to any of the 19 lines of operator information and make changes. You must press (RETURN) while the cursor is on a line for changes made on that line to be accepted by the program. Type X (RETURN) to exit from this mode, or E (RETURN) to activate the echo function.
- Column entry: Type l-o to enter parameters for operator o starting on line l. Type X (RETURN) to exit.
- Enter FAST EDIT: Type l-o*, l-o=, or l-oE to enter fast edit for parameter l and operator o. E will also activate the echo function for the entire FAST EDIT session.
- Exchange operators: Type Eo-p to exchange the values for all parameters for operators o and p.
- Change name: Type N-xxx to name the patch xxx.
- Change description: Type D-xxx to change the description to xxx.
- Change Algorithm: Type Av to change the algorithm to v.
- Echo function: Type E to activate the echo function. Press any key to exit from the echo function.
- Other screens: Type G to go to the general screen or F to go to the function screen. Type X to return to the Main Menu.
- Edit compare: Type C to compare the patch being edited to the original patch. Type Cp to compare it to patch p in the computer memory. Type CE instead of C to also activate echo mode.
- Save patch: Type Sp to save the current patch as patch p.
- Edit new patch: Type Pp to edit patch p.
- Play sequence: Type *s to play sequence s. Sequence s must have been loaded from Sequencer Mode.

FAST EDIT MODE

- Increase value: Z increases the current parameter by 8. X increases the current parameter by 1. If the frequency is being edited, the fine frequency is affected by Z, X, C, and V.
- Decrease value: V decreases the current parameter by 8, C decreases it by 1.
- Coarse frequency: If the frequency is being edited, B increases the coarse frequency by 1, N decreases it by 1.
- Set value: Typing any two digits sets the current parameter to the value typed. Use a leading '0' to set the parameter to a value less than 10.
- Change parameter: Use the up and down cursor keys, or Control J or K, to change the parameter being edited. Use left and right cursor to change the operator. The new parameter and operator will be displayed at the bottom of the screen.
- Exit FAST EDIT Press (RETURN) to exit from FAST EDIT mode. Do not follow other FAST EDIT commands with (RETURN).

GENERAL AND FUNCTION SCREENS

- Change one value: Type 1-v to set parameter 1 to the value v.
- Enter FAST EDIT: Type 1*, 1= or 1E to enter fast edit for parameter 1. E activates the echo function.
- Other screens: Press return to go to the operator screen. Press F or G to get to the function or general screens, or X to return to the main menu.
- Other functions: The Echo, Save and Edit functions are activated as on the operator screen. The Edit Compare and Play functions are only available on the operator screen.

LIST OF LINE NUMBERS AND CORRESPONDING
PARAMETERS FOR OPERATOR SCREEN

1.	RATE	1
2.	LEVEL	1
3.	RATE	2
4.	LEVEL	2
5.	RATE	3
6.	LEVEL	3
7.	RATE	4
8.	LEVEL	4
9.	OUTPUT	
10.	FREQ	
11.	DETUNE	
12.	VEL SENS	
13.	AM SENS	
14.	RATE SCL	
15.	BRK PNT	
16.	LEFT DEP	
17.	RGT DEP	
18.	LEFT CUR	
19.	RGT CUR	

I am submitting the patch files on the enclosed diskette for inclusion in Dr. T's Music Software's DX7 Patch Library Service. I certify that these patches are my own original creations, and that exclusive rights for their distribution have not been granted to any other person or organization.

I understand that my compensation for the inclusion of these patches in any Dr. T's Music Software Patch Library Volume will be one free copy of any diskette volume containing patches that I submitted and two (2) per cent of gross revenues realized by Dr. T's Music Software from the sale of Patch Library Volumes containing my patches.

(signed)

APPENDIX - DX7 ALGORITHM TABLE

$\begin{array}{c} \ddot{6} \\ 5 \\ 2 \quad 4 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} 6 \\ 5 \\ 2 \quad 4 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} \ddot{3} \quad \ddot{6} \\ 3 \quad 6. \\ 2 \quad 5 \\ \dot{1} \quad 4 \end{array}$	$\begin{array}{c} \ddot{3} \quad \ddot{6} \\ 3 \quad 6.. \\ 2 \quad 5 \\ \dot{1} \quad 4. \end{array}$	$\begin{array}{c} \ddot{2} \quad 4 \quad \ddot{6} \\ 2 \quad 4 \quad 6. \\ \dot{1} \quad 3 \quad 5 \end{array}$	$\begin{array}{c} \ddot{2} \quad 4 \quad \ddot{6} \\ 2 \quad 4 \quad 6.. \\ \dot{1} \quad 3 \quad 5. \end{array}$
ALG 1	ALG 2	ALG 3	ALG 4	ALG 5	ALG 6
$\begin{array}{c} \ddot{6} \\ 5 \\ 2 \quad 4 \quad 5 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} 6 \\ \ddot{5} \quad \dot{5} \\ 2 \quad 4 \quad 5 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} 6 \\ \ddot{5} \quad \dot{5} \\ 2 \quad 4 \quad 5 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} \ddot{3} \\ 5 \quad 6 \quad 2 \\ 5 \quad 6 \quad 2 \\ \ddot{4} \quad \dot{1} \end{array}$	$\begin{array}{c} 3 \\ \ddot{5} \quad \dot{6} \quad 2 \\ 5 \quad 6 \quad 2 \\ \ddot{4} \quad \dot{1} \end{array}$	$\begin{array}{c} \ddot{4} \quad 5 \quad 6 \quad 2. \\ 4 \quad 5 \quad 6 \quad 2. \\ \ddot{3} \quad \dot{1} \end{array}$
ALG 7	ALG 8	ALG 9	ALG 10	ALG 11	ALG 12
$\begin{array}{c} 5 \quad \ddot{6} \\ 2 \quad 4 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} 5 \quad 6 \\ 2 \quad 4 \\ \dot{1} \quad 3 \end{array}$	$\begin{array}{c} 4 \quad 6. \\ 2 \quad 3 \quad \ddot{5} \\ \ddot{1} \end{array}$	$\begin{array}{c} 4 \quad 6 \\ 2 \quad 3 \quad \ddot{5} \\ \ddot{1} \end{array}$	$\begin{array}{c} 6 \\ 5 \\ \ddot{3} \quad 2 \quad 4 \\ \ddot{1} \end{array}$	$\begin{array}{c} 3 \\ 2 \quad \ddot{6} \\ \dot{1} \quad 4 \quad 5 \end{array}$
ALG 14	ALG 15	ALG 16	ALG 17	ALG 18	ALG 19
$\begin{array}{c} \ddot{3} \quad 6 \\ \ddot{1} \quad 2 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} 2 \quad \ddot{6} \\ \dot{1} \quad 3 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} 3 \quad \ddot{6} \\ \dot{1} \quad 2 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} \ddot{6} \\ \dot{1} \quad 2 \quad 3 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} \ddot{6} \\ \dot{1} \quad 2 \quad 3 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} \ddot{3} \quad 5 \quad \ddot{6} \\ \dot{1} \quad 2 \quad \ddot{4} \end{array}$
ALG 21	ALG 22	ALG 23	ALG 24	ALG 25	ALG 26
$\begin{array}{c} \ddot{3} \quad 5 \quad 6 \\ \dot{1} \quad 2 \quad \ddot{4} \end{array}$	$\begin{array}{c} \ddot{5} \\ 2 \quad 4 \\ \dot{1} \quad 3 \quad 6 \end{array}$	$\begin{array}{c} 4 \quad \ddot{6} \\ \dot{1} \quad 2 \quad 3 \quad 5 \end{array}$	$\begin{array}{c} \ddot{5} \\ 4 \\ \dot{1} \quad 2 \quad 3 \quad 6 \end{array}$	$\begin{array}{c} \ddot{6} \\ \dot{1} \quad 2 \quad 3 \quad 4 \quad 5 \end{array}$	$\begin{array}{c} \ddot{1} \quad 2 \quad 3 \quad 4 \quad 5 \quad \ddot{6} \\ \dot{1} \quad 2 \quad 3 \quad 4 \quad 5 \quad \ddot{6} \end{array}$
ALG 27	ALG 28	ALG 29	ALG 30	ALG 31	ALG 32

The above diagrams show the algorithms, or operator arrangements, used in patches for the DX7, TX7 and TPI synthesizers. The dots represent modulation paths and feedback loops.



